METHOD FOR TRIANGLE SUBDIVISION
IN COMPUTER GRAPHICS TEXTURE MAPPING
TO ELIMINATE ARTIFACTS IN HIGH PERSPECTIVE POLYGONS
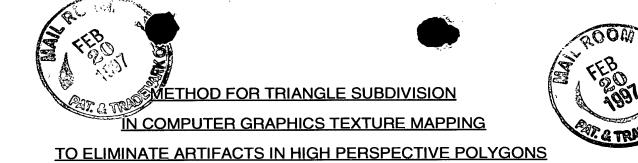
5   ABSTRACT OF THE DISCLOSURE

The system and method of the present invention performs an iterative operation that subdivides selected polygons (e.g., triangles) having high perspective ratios into a plurality of smaller polygons to limit artifact creation during the rendering/texture map processes. The present invention is

10   particularly well suited for interpolation driven rendering/texture map processes. Processing logic of the present invention analyzes each polygon stored in display list memory of a graphics accelerator or graphics subsystem and determines a perspective ratio between adjacent vertices of the polygon. If the perspective ratio is greater than a pre-selected limit, the

15   edge bounded by the vertices is subdivided at the mid-point and new polygons are created. The process is iterative until all polygons have perspective ratios that are less than the pre-selected limit, at which time the object data can be displayed by the hardware. Perspective values (w) and three dimensional coordinates (x, y, z) for each created mid-point are

20   calculated by averaging the perspective values at the vertices bounding the edge. Texture coordinates at the mid-point of a divided edge (umid, vmid) are calculated and then interpolated across the resulting polygon to determine the texels values of the image at each pixel within the boundary of the polygon. The present invention eliminates artifact creation when used

25   with interpolation driven rendering/texture map processes that might otherwise not properly process polygons with large perspective.

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